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USPT,PGPB,JPAB,EPAB,DWPI,TDBD	photovolt$4	17655	L11
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	photvolta$4	38	L10
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	solar adj cell	28801	L9
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	l1 same l4	138	L8
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	l1 same l3	5	L7
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	l1 and l4	1341	L6
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	l1 near l4	3	L5
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	l2 or l3	1619142	L4
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	polyethylene adj (naphthalate or terephthalate)	76162	L3
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	polymer$4 or pet or pen	1595558	L2
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	cate or (cadmium adj telluride)	14207	L1

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L11     1384127 POLYMER#######

=> d his

     (FILE 'HOME' ENTERED AT 12:20:47 ON 24 JAN 2002)

     FILE 'CA' ENTERED AT 12:20:56 ON 24 JAN 2002
L1        33954 SOLAR(2A)CELL#
L2        18460 PHOTOVOLT######
L3        45400 L1 OR L2
L4        20857 POLYETHYLENE (2A)TEREPHTHALATE
L5         1368 POLYETHYLENE (2A)NAPHTHALATE
L6        21961 L4 OR L5
L7        23117 CADMIUM (2A)TELLURIDE
L8        13526 CDTE
L9        24557 L7 OR L8
L10           2 L6 AND L9 AND L3
L11     1384127 POLYMER#######

=> l3 and l9 and l11
L12          26 L3 AND L9 AND L11

=> d l12 1-26 all
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L12 ANSWER 1 OF 26 CA COPYRIGHT 2002 ACS
AN 135:291241 CA
TI Thin film solar module encapsulation processes for large area manufacturing
AU Springer, J.; Schroder, S.; Fritsch, J.; Ozsan, E. M.; Niegisch, N.; Mennig, M.; DeRosa, L.; Bellucci, Francesco; Feichtinger, J.; Kazandjian, A.
CS Zentrum fur Sonnenenergie- und Wasserstoff-Forschung (ZSW), Stuttgart, D 70565, Germany
SO Eur. Photovoltaic Sol. Energy Conf., Proc. Int. Conf., 16th (2000), Volume 1, 911-914. Editor(s): Scheer, Hermann. Publisher: James & James (Science Publishers) Ltd., London, UK.
CODEN: 69BOEK
DT Conference
LA English
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76
AB Std. encapsulation of thin-film solar modules (**CdTe** or CIS) is based on the conventional glass/hotmelt/glass structure used for silicon **solar cells**. The planar structure of monolithic integrated thin-film modules on glass substrates allows much simpler encapsulation procedures (,,conformal coating") resulting in reduced wt., lower material costs and easier access to recycling. The approach within a JOULE III contract was to encapsulate CIS and **CdTe** solar modules with a variety of alternative layers such as org. varnishes, nanocomposites, parylenes, plasma-polymd. films, org. foils and combinations thereof. The varnishes were chosen out of a range of products for the automotive industry and optimized by modification with transparent fillers, adhesion promoters and other agents. The nanocomposites were derived from sol-gel materials used for corrosion protection and also modified by pigments. The plasma-**polymers** were prepd. in low-pressure microwave plasma with HMDSO and related precursors. Parylenes are **polymers** frequently used in the electronics industry for high quality conformal coating of circuits. CIS modules could be encapsulated with modified varnishes and with double layers consisting of varnish on top of a thin plasma-**polymer** film with stability results very close to std. glass/hotmelt encapsulation. This could be demonstrated by comparing the behavior of

small modules with different encapsulations under the stress of the damp heat test.

ST solar module thin film encapsulation; **cadmium telluride** **solar cell** encapsulation; copper gallium indium selenide **solar cell**

IT Encapsulation
Sol-gel processing
Solar cells
(thin film **solar** module encapsulation processes for large area manufg.)

IT 1306-25-8, **Cadmium telluride**, uses 136168-39-3, Copper gallium indium selenide cugainse2
RL: DEV (Device component use); USES (Uses)
(thin film solar module encapsulation processes for large area manufg.)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Bonnet, D; Proceedings 14th European PVSEC 1997, P2688
(2) Dimmler, B; proc 2nd World Conference and Exhib On PV Solar Energy Conv 1998, P419 CA
(3) Doblhofer, K; Corrosion Science 1987, V27 CA
(4) Woodcock, J; Proceedings 14th European PVSEC 1997, P857

L12 ANSWER 2 OF 26 CA

AN 135:183225 CA

TI Flexible **CdTe solar cells** on **polymer** films

AU Tiwari, A. N.; Romeo, A.; Baetzner, D.; Zogg, H.

CS Thin Film Physics Group, Swiss Federal Institute of Technology, Zurich, CH-8005, Switz.

SO Prog. Photovoltaics (2001), 9(3), 211-215
CODEN: PPHOED; ISSN: 1062-7995

PB John Wiley & Sons Ltd.

DT Journal

LA English

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

AB Lightwt. and flexible **CdTe**/CdS **solar cells** on polyimide films have been developed in a superstrate configuration where the light is absorbed in **CdTe** after passing through the polyimide substrate. The av. optical transmission of the approx. 10-.mu.m-thin spin-coated polyimide substrate layer is more than .apprx.75% for wavelengths above 550 nm. RF magnetron sputtering was used to grow transparent conducting aluminum-doped zinc oxide (ZnO:Al) layers on polyimide films. **CdTe**/CdS layers were grown by evapn. of compds., and a CdCl2 annealing treatment was applied for the recrystn. and junction activation. **Solar cells** of 8.6% efficiency with open-circuit voltage 763 mV, short-circuit current 20.3 mA/cm2 and fill factor 55.7% were obtained.

ST **cadmium telluride** flexible **solar cell** polyimide film

IT **Solar cells**
(development of flexible **cadmium telluride**/ **cadmium** sulfide **solar cells** on polyimide films)

IT Polyimides, uses
RL: DEV (Device component use); USES (Uses)
(development of flexible **cadmium telluride**/ **cadmium** sulfide **solar cells** on polyimide films)

IT 1306-23-6, Cadmium sulfide, uses 1306-25-8, **Cadmium telluride**, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(development of flexible **cadmium telluride**/ **cadmium** sulfide **solar cells** on polyimide films)

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Aramato, T; Japanese Journal of Applied Physics Part 1 1997, V36, P6304
(2) Basol, B; Proceedings of the 25th IEEE Photovoltaic Specialists Conference 1988 1996, P157
(3) Batzner, D; Proceedings of the 16th European Photovoltaic Solar Energy Conference and Exhibition 2000, P353 CA
(4) Birkmire, R; Proceedings of the 1994 IEEE 1st World Conference on Photovoltaic Conversion 1994, P76 CA
(5) Bonnet, D; International Journal of Solar Energy 1992, V12, P1
(6) Bonnet, D; Journal of Materials Research 1998, V13, P2740 CA
(7) Britt, J; Applied Physics Letters 1993, V62, P2851 CA
(8) Burgess, R; Proceedings of the 20th IEEE Photovoltaic Specialists Conference 1988 1988, P909 CA
(9) Fairbanks, E; Proceedings of the 26th IEEE Photovoltaic Specialist Conference 1988 1997, P979 CA
(10) Jasenek, A; Proceedings of the 16th European Photovoltaic Solar Energy Conference and Exhibition 2000, P982
(11) McCandless, B; Progress in Photovoltaics:Research and Applications 1999, V7, P21 CA
(12) Romeo, A; Proceedings of the 2nd World Conference and Exhibition on Photovoltaic Solar Energy Conversion 1998, P1105 CA
(13) Romeo, N; Solar Energy Materials and Solar Cells 1999, V58, P209 CA
(14) Schock, H; Proceedings of the 14th European Photovoltaic Solar Energy Conference 1997, P2000
(15) Seth, A; Solar Energy Materials and Solar Cells 1999, V59, P35 CA
(16) Tiwari, A; Progress in Photovoltaics:Research and Applications 1999, V7, P393 CA
(17) Wang, W; Proceedings of the 2nd World Conference and Exhibition on Photovoltaic Solar Energy Conversion 1998, P1055 CA
(18) Zweibel, K; Solar Energy Materials and Solar Cells 1999, V59, P1 CAPLUS

L12 ANSWER 3 OF 26 CA

AN 134:172440 CA

TI Incorporation of a **solar cell** into a sensor for fluorescence or emission monitoring of substrates

IN Danz, Rudi; Elling, Burkhard

PA Fraunhofer-Gesellschaft zur Foerderung der Angewandten Forschung E.V., Germany

SO Ger. Offen., 8 pp.
CODEN: GWXXBX

DT Patent

LA German

IC ICM G01D021-00
ICS G01N021-59; H01L031-0232

CC 79-2 (Inorganic Analytical Chemistry)
Section cross-reference(s): 9, 15, 52

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19935180	A1	20010215	DE 1999-19935180	19990727
	DE 19935180	C2	20010802		

AB A sensor is based on monitoring a measured variable (including both phys. and chem. properties) in which an assocd. **solar cell** is coated on one side with a coating that contains mols. or materials as indicators that have fluorescence or spectral transmission properties that depend on the measured variable. The assocd. **solar cell** is irradiated, after the coating or in connection with the coating, with natural ar artificial light, in which changes in the emission or output

L12 ANSWER 9 OF 26 CA COPYRIGHT 2002 ACS
AN 129:205144 CA
TI **Photovoltaic** structures based on **polymer**/semiconductor junctions
AU Gamboa, S. A.; Nguyen-Cong, H.; Chartier, P.; Sebastian, P. J.; Calixto, M. E.; Rivera, M. A.
CS Centro de Investigaciones en Energia Coordinacion de Solar-H2-Celdas de Combustible, CIE-UNAM, Temixco, Morelos, 62580, Mex.
SO Sol. Energy Mater. Sol. Cells (1998), 55(1-2), 95-104
CODEN: SEMCEQ; ISSN: 0927-0248
PB Elsevier Science B.V.
DT Journal
LA English
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72
AB **CdTe** and CuInSe2 (CIS) thin films were electrodeposited and characterized for **photovoltaic** applications. Schottky barrier-type **photovoltaic** junctions were obtained using a heavily doped PMeT (poly-3-methylthiophene), prepd. by electropolymn., displaying nearly metallic behavior, and semiconductors such as **CdTe** and CIS obtained by electrodeposition. The **photovoltaic** structures formed and studied are Mo/CIS/PMeT/grid and Mo/**CdTe**/PMeT/grid Schottky barrier junctions. Solar to elec. conversion efficiency of the order of 1% was obtained in the case of PMeT/CIS and PMeT/**CdTe** junctions.
ST **solar cell polymer** semiconductor junction; polymethylthiophene copper indium selenide **solar cell**; **cadmium telluride** polymethylthiophene **solar cell**
IT Electrodeposition
Schottky **solar cells**
Solar cells
(**photovoltaic** structures based on **polymer** /semiconductor junctions)
IT 1306-25-8, **Cadmium telluride**, uses 7439-98-7, Molybdenum, uses 12018-95-0, Copper indium diselenide 84928-92-7, Poly-3-methylthiophene
RL: DEV (Device component use); USES (Uses)
(**photovoltaic** structures based on **polymer** /semiconductor junctions)

L12 ANSWER 10 OF 26 CA COPYRIGHT 2002 ACS
AN 127:296265 CA
TI Thin-film **photovoltaic** device and its manufacture
IN Albright, Scot P.; Chamberlin, Rhodes
PA Photon Energy, Inc., USA
SO U.S., 17 pp.
CODEN: USXXAM
DT Patent
LA English
IC ICM H01L031-0384
ICS H01L031-072; H01L031-18
NCL 136250000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5674325	A	19971007	US 1995-480452	19950607
	US 5868869	A	19990209	US 1997-946365	19971007
PRAI	US 1995-480452		19950607		

AB The device comprises a film layer having particles of .ltorsim.30 .mu.m

size held in an elec. insulating matrix material to decrease the potential for elec. shorting through the film layer. The film layer may be provided by depositing preformed particles on a surrogate substrate and binding the particles in a film-forming matrix material to form a flexible sheet with the film layer. The flexible sheet may be sepd. from the surrogate substrate and cut into flexible strips. A plurality of the flexible strips may be located adjacent to and supported by a common supporting substrate to form a **photovoltaic** module having a plurality of elec. interconnected **photovoltaic** cells.

ST thin film **photovoltaic** cell manuf

IT **Polymers,** uses
RL: TEM (Technical or engineered material use); USES (Uses)
(insulating matrix in manuf. of thin-film **photovoltaic** device)

IT **Solar cells**
(thin-film; manuf. of)

IT 1306-23-6, Cadmium sulfide, uses 1306-25-8, **Cadmium telluride,** uses 12018-95-0, Copper indium diselenide
RL: DEV (Device component use); USES (Uses)
(thin-film **photovoltaic** device and its manuf.)

L12 ANSWER 11 OF 26 CA COPYRIGHT 2002 ACS

AN 125:37994 CA

TI Wet **polymer** electrolyte photoelectrochemical **solar cells** and their manufacture

IN Takeuchi, Masataka

PA Showa Denko Kk, Japan

SO Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01M014-00
ICS C08F020-34; C08L033-06; H01B001-06; H01L031-04

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08088030	A2	19960402	JP 1994-273057	19941012
PRAI	JP 1994-190061		19940719		

AB The cells have a redox-able species contg. ion conductive material between an electrode pair with .gtoreq.1 electrode being a semiconductor, where the ion conductive material is a solid **polymer** electrolyte of (co)**polymers** of (meth)acryloyloxyalkyl carbamate ester CH2:CR1CO(OQ)zNHCO2R2 [R1 = H or Me; R2 = linear, branched, or cyclic org. chain contg. .gtoreq.1 oxyalkylene group; Q = -(CH2)x- or -(CHMe)y-; x and y = 0 or 1-5 integer but not both = 0; and z = 0 or 1-10 integer], (co) **polymers** of (meth)acryloyl(oxyalkyl) carbamate ester CH:CR1CO(OQ)zNHCO2(R3O)R4 [R3 = -CH2- or -CHMeCH2-; R4 = C1-10 alkyl group, -CONH(Q'O)wCOCH:CH2, or -CONH(Q'O)1COCMe:CH2; Q' = -(CH2)x'- or -(CHMe)y'-; x' and y' = 0 or 1-5 integer but not both = 0; n = an integer; w and z = 0 or 1-10 integer], or (co)**polymers** of CH2:CR1CO(OQ)zNHCO2[(R6O)mCONHR5NHCO2]k (R3O)nR4 [R6 = -(CH2)2- or -CHMeCH2-; R5 = C1-20 alkylene group, allylene group, arylene group, or oxyalkylene group; and m and k = integer]. The **solar cells** are prepd. by adding a mixt. contg. the monomers to a photoelec. **solar cell** structure and polymg. the monomer.

ST photoelectrochem **solar cell polymer** electrolyte manuf

IT 106769-84-0P, **Cadmium** selenide **telluride** (Cd(Se,Te))
RL: DEV (Device component use); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC

(Process); USES (Uses)
(**cadmium** selenide **telluride** photoelectrodes for wet photoelectrochem. **solar cells** with **polymer** electrolytes)

IT 161518-46-3P 163186-25-2P 177766-68-6P
RL: DEV (Device component use); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process); USES (Uses)
(compns. and manuf. of **polymer** electrolytes for wet photoelectrochem. **solar cells**)

IT 108-32-7P, Propylene carbonate 7553-56-2P, Iodine, uses 7681-82-5P, Sodium iodide, uses 13755-29-8P, Sodium fluoroborate
RL: DEV (Device component use); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process); USES (Uses)
(compns. of **polymer** electrolytes for wet photoelectrochem. **solar cells**)

L12 ANSWER 12 OF 26 CA COPYRIGHT 2002 ACS

AN 121:283459 CA

TI Current status of EVA degradation in Si modules and interface stability in **CdTe**/CdS modules

AU Czanderna, A. W.

CS National Renewable Energy Laboratory, Measurements and Characterization Branch, Golden, CO, 80401, USA

SO AIP Conf. Proc. (1994), 306(12TH NREL PHOTOVOLTAIC PROGRAM REVIEW, 1993), 147-55
CODEN: APCPCS; ISSN: 0094-243X

DT Journal; General Review

LA English

CC 52-0 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 36

AB A review with 14 refs. of the goals, objectives, background, tech. approach, status, and accomplishments on the **Photovoltaic** Module Reliability Research Task. The accomplishments are reported on EVA **polymer** degrdn. in Si modules and on interface stability in **CdTe**/CdS modules. The modified EVA and potential EVA replacements, degrdn. mechanisms, efficiency losses from yellowed EVA, and equipment acquisitions are discussed. The stability of the SnO2/CdS interface and degrdn. at the **CdTe**/CdS interface are also described.

ST review EVA degrdn silicon **solar cell; cadmium telluride cadmium** sulfide photocell review

IT Photoelectric devices, solar
(degrdn. of ethylene-vinyl acetate **polymer** in silicon **solar cell** modules and interface stability in **cadmium** sulfide/**cadmium telluride solar cell** modules)

IT 7440-21-3, Silicon, uses
RL: DEV (Device component use); USES (Uses)
(degrdn. of ethylene-vinyl acetate **polymer** in silicon **solar cell** modules)

IT 24937-78-8, EVA
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(degrdn. of ethylene-vinyl acetate **polymer** in silicon **solar cell** modules)

IT 1306-23-6, Cadmium sulfide, uses 1306-25-8, **Cadmium telluride**, uses
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(interface stability in **cadmium** sulfide/**cadmium telluride solar cell** modules)

L12 ANSWER 13 OF 26 CA COPYRIGHT 2002 ACS
AN 119:230036 CA
TI **Cadmium telluride**/doped poly(N-epoxypropylcarbazole) structure of a solid-state **photovoltaic** cell
AU Pokhodenko, V. D.; Guba, N. F.
CS L.V. Pisarzhevsky Institute of Physical Chemistry of the Ukrainian Academy of Sciences, Kiev, Ukraine
SO Synth. Met. (1993), 60(1), 73-5
CODEN: SYMEDZ; ISSN: 0379-6779
DT Journal
LA English
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76
AB A solid-state **photovoltaic** cell of polycryst. **CdTe** /doped poly(N-epoxypropylcarbazole)/Au sandwich structure attained energy conversion efficiency of .ltoreq.3.2%. The spectral sensitivity range of the cell spans the UV, visible, and near-IR. The cell is chem. stable during storage and under operation and is easy to fabricate.
ST **cadmium telluride** conducting **polymer photovoltaic** cell; polyepoxypropylcarbazole **cadmium telluride solar cell**
IT Photoelectric devices, solar
(**cadmium telluride**/poly(N-epoxypropylcarbazole)/gold, characteristics of)
IT Electric conductors, **polymeric**
(poly(N-epoxypropylcarbazole), electrochem. oxidized, chem. stability of)
IT 55774-96-4, Poly(N-epoxypropylcarbazole)
RL: USES (Uses)
(photoelec. **solar cells**, with **cadmium telluride** and gold, characteristics of)
IT 7440-57-5, Gold, uses
RL: USES (Uses)
(photoelec. **solar cells**, with **cadmium telluride** and poly(N-epoxypropylcarbazole), characteristics of)
IT 1306-25-8, **Cadmium telluride** (**CdTe**), uses
RL: USES (Uses)
(photoelec. **solar cells**, with poly(N-epoxypropylcarbazole) and gold, characteristics of)

L12 ANSWER 14 OF 26 CA COPYRIGHT 2002 ACS
AN 117:115199 CA
TI **Solar-cell** arrays and their manufacture
IN Matsuyama, Fukateru
PA Canon K. K., Japan
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01L031-04
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 04116986	A2	19920417	JP 1990-235892	19900907
	JP 2986875	B2	19991206		

AB The arrays has **solar cells** comprising a semiconductor layer held between a top electrode and a bottom electrode, connected to each other, the cells are covered at their ends or whole surface with an insulator and the elec. conductor layer connecting a top electrode and a bottom electrode of 2 neighboring cells covers the insulator between the cells. The insulator may be a **polymer** or an inorg. material,

the conductor may be a conductive **polymer** and/or a metal, and the semiconductor may be amorphous Si. The arrays are prepd. by forming patterned semiconductor and top electrode layers on bottom electrodes leaving part of the bottom electrodes exposed, forming insulator films to cover the ends or whole surface of the cells, removing the insulator films from part of a top electrode and a bottom electrode of 2 neighboring cells, and forming conductor layers to connect the exposed electrode areas.

ST silicon **solar cell** array

IT Epoxy resins, uses
Polyimides, uses
Siloxanes and Silicones, uses
RL: USES (Uses)
(elec. insulator, **solar cells** covered with, manuf. of arrays of)

IT Electric insulators and Dielectrics
(photoelec. **solar cells** covered with, manuf. of arrays of)

IT Photoelectric devices, solar
(silicon and **cadmium** sulfide-**cadmium telluride**, arrays, manuf. of)

IT 12033-60-2, Silicon nitride (SiN)
RL: USES (Uses)
(elec. insulator, **solar cells** covered with, manuf. of arrays of)

IT 7440-21-3P, Silicon, uses
RL: PREP (Preparation); USES (Uses)
(photoelec. **solar cells**, arrays, with elec. insulators among unit cells, manuf. of)

L12 ANSWER 15 OF 26 CA

AN 114:146955 CA

TI **Solar cells** having coated light-incident side

IN Omura, Kuniyoshi; Suyama, Naoki; Hibino, Takeshi; Murozono, Mikio

PA Matsushita Electric Industrial Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01L031-04

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 02177573	A2	19900710	JP 1988-334460	19881228

AB The **solar cells** have a glassy layer of resin mixed with inorg. powder on their light-incident side. Preferably, the **solar cells** contain 2 layers of semiconductor compds. (CdS or compd. contg. Cd and S, and **CdTe** or compd. contg. Cd and Te), electrodes, and a transparent glass coated with the resin mixt. at the light-incident side. The inorg. powder is selected from SiO_2 and TiO_2 at <50 wt. % of the resin. The coating may be applied in a required pattern. The coating gives the **solar cells** better appearance, decreases reflection loss of the cells, and makes cutting of glass easier when sepg. **solar cells** made on a common glass substrate,.

ST **solar cell** resin silica coating; titania resin coating **solar cell**

IT Photoelectric devices, solar
(**cadmium** sulfide-**cadmium telluride**, with light-incident side coated with inorg. powder-contg. resin films)

IT 7631-86-9, Silica, uses and miscellaneous 13463-67-7, Titania, uses and miscellaneous
RL: USES (Uses)
(**solar cells** with **polymer** layers contg.)

L12 ANSWER 16 OF 26 CA COPYRIGHT 2002 ACS
AN 114:125844 CA
TI **Solar cell** modules
IN Nakano, Akihiko
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01L031-04
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 02170475	A2	19900702	JP 1988-324125	19881222

AB The modules have Group II chalcogenide or Group II chalcogenide/Group I-Group III chalcogenide semiconductors sealed in a package, which has an org. **polymer** or hydrophobic porous org. material attached to or a porous inorg material-org. material mixt. filled in its holes. The **polymer** may be a silicon resin or a polyolefin, the porous org. material may be a fluoropolymer tape, and the filler may be sintered C mixed with wax or porous inorg. oxides. This structure allows O to permeate into the modules to prevent deterioration of the modules.
ST **solar cell** module oxygen permeable; silicone resin **solar cell** module; polyolefin **solar cell** module; fluoropolymer **solar cell** module; carbon wax **solar cell** module; oxide inorg **solar cell** module; chalcogenide **solar cell** module
IT Photoelectric devices, solar
(**cadmium** sulfide-**cadmium telluride** and **cadmium** sulfide-copper indium selenide, modules, oxygen-permeable packaging materials for)
IT Fluoropolymers
Rubber, silicone, uses and miscellaneous
RL: USES (Uses)
(**solar cell** modules with packaging materials of oxygen-permeable)
IT Waxes and Waxy substances
RL: USES (Uses)
(**solar cell** modules with packaging oxygen-permeable materials contg.)
IT 9002-88-4, Polyethylene 25068-26-2, Poly(4-methyl pentene-1
RL: USES (Uses)
(**solar cell** modules with packaging materials of oxygen-permeable)
IT 1344-28-1, Alumina, uses and miscellaneous 7440-44-0, Carbon, uses and miscellaneous
RL: USES (Uses)
(**solar cell** modules with packaging oxygen-permeable materials contg.)

L12 ANSWER 17 OF 26 CA COPYRIGHT 2002 ACS
AN 107:62036 CA
TI Power generating optical filter
IN Ovshinsky, Stanford R.
PA Energy Conversion Devices, Inc., USA

SO Eur. Pat. Appl., 56 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM H01L031-02
ICS H01L031-06
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 218997	A2	19870422	EP 1986-113548	19861002
	EP 218997	A3	19890705		
	EP 218997	B1	19930728		
	R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE				
	CA 1268973	A1	19900515	CA 1986-519109	19860925
	IN 166970	A	19900811	IN 1986-DE855	19860926
	AT 92212	E	19930815	AT 1986-113548	19861002
	JP 2575667	B2	19970129	JP 1986-241170	19861009
	JP 08056007	A2	19960227	JP 1995-187457	19950724
	JP 2752924	B2	19980518		
PRAI	US 1985-786579		19851011		
	US 1985-806232		19851206		
	EP 1986-113548		19861002		

AB The title filter has a transparent substrate, a 1st substantially transparent electrode disposed on at least designated areas of the substrate, a body of **photovoltaic** material disposed on the 1st electrode, and a 2nd substantially transparent electrode disposed on the body of **photovoltaic** material, to generate elec. power from absorbed selected wavelengths and transmit at least portions of selected wavelengths of unabsorbed incident light in the visible spectrum. Silicate or borosilicate glass, **polymers** (e.g., polyesters, polyimides, or polycarbonates), or laminated layers of these materials are used as the transparent substrate. Thin film semiconductors (amorphous F-doped hydrogenated Si, Si-Ge, CdS/**CdTe**, etc.) having p-i-n structure are used as the **photovoltaic** material; oxides of In, Sn, In-Sn, and Zn, etc., are used as the transparent electrodes. These filters are useful for motor vehicles or architectural building windows.
ST window glass **solar cell**
IT Windows
Windshields
(glass for, laminated with **solar cells**)
IT Photoelectric devices, solar
(window glass with laminated)

L12 ANSWER 18 OF 26 CA COPYRIGHT 2002 ACS
AN 106:123148 CA
TI **Solar-cell** module
IN Nakano, Akihiko; Takada, Hajime; Hibino, Takeshi; Yoshida, Manabu
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01L031-02
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 61280677	A2	19861211	JP 1985-122990	19850606

AB A **solar-cell** module has a **solar cell**

formed on a substrate with blank edges, a protection film, a resin layer between the cell and the film, and a nonadhesive insulation sheet between the resin layer and the cell for absorbing mech. stress caused by the difference in thermal expansion. A thin-film CdS-**CdTe** or amorphous Si cell is used, and the sheet is a **polymer** having m.p. higher than that of the resin and is being larger than the cell. A CdS-**CdTe** cell was formed on an alkali-free borosilicate glass substrate with 6.5-mm-wide edges of the substrate left blank. A 50-.mu. poly(ethylene terephthalate) sheet, a 0.1-mm-thick anhydride-modified polyethylene layer, and a resin-coated Al protection film were stacked successively on the substrate. The assembly was inserted into a bag, and the bag was evacuated and heated to 135.degree. to seal the protection film to the blank edges by the atm. pressure. The output power of this module decreased 3% after 50 heat cycles between -20 and +80.degree. in a 90% relative humidity environment vs. 18% for a module without the sheet. **Telluride cadmium solar cell** module.

ST **solar cell** module PET; cadmium sulfide **solar cell** module

IT Photoelectric devices, solar
(modules, with PET stress-absorbing sheets)

IT 7440-21-3, Silicon, uses and miscellaneous
RL: USES (Uses)
(photoelec. **solar-cell** modules, amorphous, with PET stress-absorbing sheets)

IT 1306-25-8, **Cadmium telluride,** uses and miscellaneous
RL: USES (Uses)
(**solar-cell** modules from junction of cadmium sulfide and, with PET stress-absorbing sheets)

IT 1306-23-6, Cadmium sulfide, uses and miscellaneous
RL: USES (Uses)
(**solar-cell** modules from junction of **cadmium telluride** and, with PET stress-absorbing sheets)

IT 25038-59-9, PET (polyester), uses and miscellaneous
RL: USES (Uses)
(**solar-cell** modules with stress-absorbing sheets of)

L12 ANSWER 19 OF 26 CA COPYRIGHT 2002 ACS
AN 105:118218 CA
TI Manufacture of **solar cell**
IN Isozaki, Yasuto; Hasegawa, Hiroshi
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01L031-04
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 61111585	A2	19860529	JP 1984-232887	19841105
	JP 05019836	B4	19930317		

AB A depolymerizable **polymer** is added to CdS-CdCl2 and **CdTe** -CdCl2 mixts. to form pastes for **solar cell** manuf. The **polymer** is decompd. by heating after the application of the paste. Thus, a paste of CdS 60, CdCl2 6, poly(Me methacrylate) 3, and benzyl alc. 31% was screen printed on a glass substrate, heated at 400.degree. for 1 h, and at 690.degree. in N for 1 h to form a CdS film. A paste of **CdTe** 60, CdCl2 0.3, poly(methacrylic acid) 3, and